GENERAL SPECIFICATIONS

Shipping Weight	21.5 metric tons (47,399 lb), includes fuel 10%, boom, 5,700 mm (18' 8"), arm 2,900 mm (9' 6"), standard bucket and standard shoes
Operating Weight	Add weight of full fuel tank and operator.
Shipping Weights with Optional Track Shoe	Add 285 kg (628 lb) for 700 mm (28") shoes
	Add 560 kg (1,235 lb) for 800 mm (32") shoes
	Add 850 kg (1,874 lb) for 900 mm (35") shoes
Major Component Weight	Standard Boom 5,700 mm (18' 8") 1,445 kg (3,186 lb)
	5,200 mm (17' 1") Boom 1,333 kg (2,939 lb)
	2,000 mm (6' 7") Arm 579 kg (1,276 lb)
	2,400 mm (7' 10") Arm 595 kg (1,312 lb)
	2,900 mm (9' 6") Arm 679 kg (1,497 lb)
	3,500 mm (11' 6") Arm 815 kg (1,797 lb)
	Boom Cylinders 178 kg (392 lb) each
	Arm Cylinder 266 kg (586 lb)
	Bucket Cylinder 152 kg (355 lb)
	Counterweight 4,100 kg (9,039 lb)
	Upper Turntable 5,753 kg (12,639 lb) (Excluding Counterweight and Front)
	Lower - 7,635 kg (16,832 lb) (Including Swing Bearing)
Digging Forces (At Power Boost):	
Bucket Cylinder	13,300 kg (29,321 lb) - (with either 3,500 mm [11' 6"] or 2,400 mm [7' 10"] arm)
Arm Cylinder	10,500 kg (23,149 lb) with 2,900 mm (9' 6") arm
Fuel Tank Capacity	400 liters (105.7 U.S. gal)
Hydraulic System Capacity	240 liters (63.4 U.S. gal)
Hydraulic Reservoir Capacity	140 liters (37 U.S. gal)
Bucket Heaped Capacity Range	PCSA 0.4 - 1.28 m^3 (0.5 - 1.67 yd^3)
	IMPORTANT: Refer to the Load Weight, Bucket and Arm Length Compatibility Table for information on which bucket sizes may be used safely with which arm length, for load material weights.
Shoe Type	Triple Grouser
Shoe Width and Optional Sizes	600 mm (24") - standard
	700 mm (28") - optional
	800 mm (32") - optional
	900 mm (35") - optional
Ground Pressure Ratings:	
Standard 600 mm (24") shoe	0.45 kg/cm^2 (6.4 psi)
Optional 700 mm (28") shoe	0.39 kg/cm^2 (5.55 psi)
Optional 800 mm (32") shoe	0.34 kg/cm^2 (4.84 psi)
Optional 900 mm (35") shoe	0.30 kg/cm^2 (4.27 psi)
Transport Dimensions	
Overall Shipping Length (standard boom and arm)	9,485 mm (31' 1")

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DX225LC/DX230LC

OPTION	APPLIED PART
LOCK VALVE	(23)
ONE-WAY ; JOYSTICK BOTTON	(24) (28)
ONE/TWO-WAY	(24) (26) (27) (28) (29) (30) (45)
ROTATING	(31) (32) (33) (34) (44)
QUICK COUPLER	(36)
ARTIC. BOOM	(35) (39) (40) (41) (42) (43)
PATTERN CHANGE VALVE (ISO↔BHL)	(46)
SWING ALARM	(09)

STD

1. PUMP
2. PILOT FILTER
3. SOLENOID VALVE (CUT OFF)
4. ACCUMULATOR
5. SOLENOID VALVE(PACKAGE)
6. JOYSTICK VALVE(L)
7. JOYSTICK VALVE(R)
8. PEDAL VALVE
10. CONTROL VALVE
11. BOOM CYLINDER
12. ARM CYLINDER
13. BUCKET CYLINDER
14. SWING DEVICE
15. TRAVEL DEVICE
16. CENTER JOINT
17. RESTRICTION VALVE
18. RESTRICTION VALVE
19. OIL COOLER
20. FULL FLOW FILTER
21. AIR BREATHER
22. HYDRAULIC TANK

OPT

9. SHUTTLE VALVE for SWING ALARM
23. LOCK VALVE
24. PROPORTIONAL VALVE
25. HIGH PRESS. RETURN FILTER
26. ONE/TWO-WAY SELECT V/V 1
27. ONE/TWO-WAY SELECT V/V 2
28. STOP VALVE
29. OPT. PEDAL VALVE 1
30. SHUTTLE VALVE for OPT.
31. PTO
32. ADDITIONAL GEAR PUMP
33. SOL. V/V for ROTATING
34. ROTATING VALVE
35. OPT. PEDAL VALVE 3
36. QUICK CLAMP VALVE
39. ARTI. BOOM CYLINDER
40. OPT. SHUTTLE VALVE
41. ARTI. BOOM LOCK V/V
42. ARTI. VALVE
43. SOL. V/V for ARTI.
44. OPT. PEDAL VALVE 2
45. SOL. V/V for E3C
46. PATTERN CHANGE VALVE

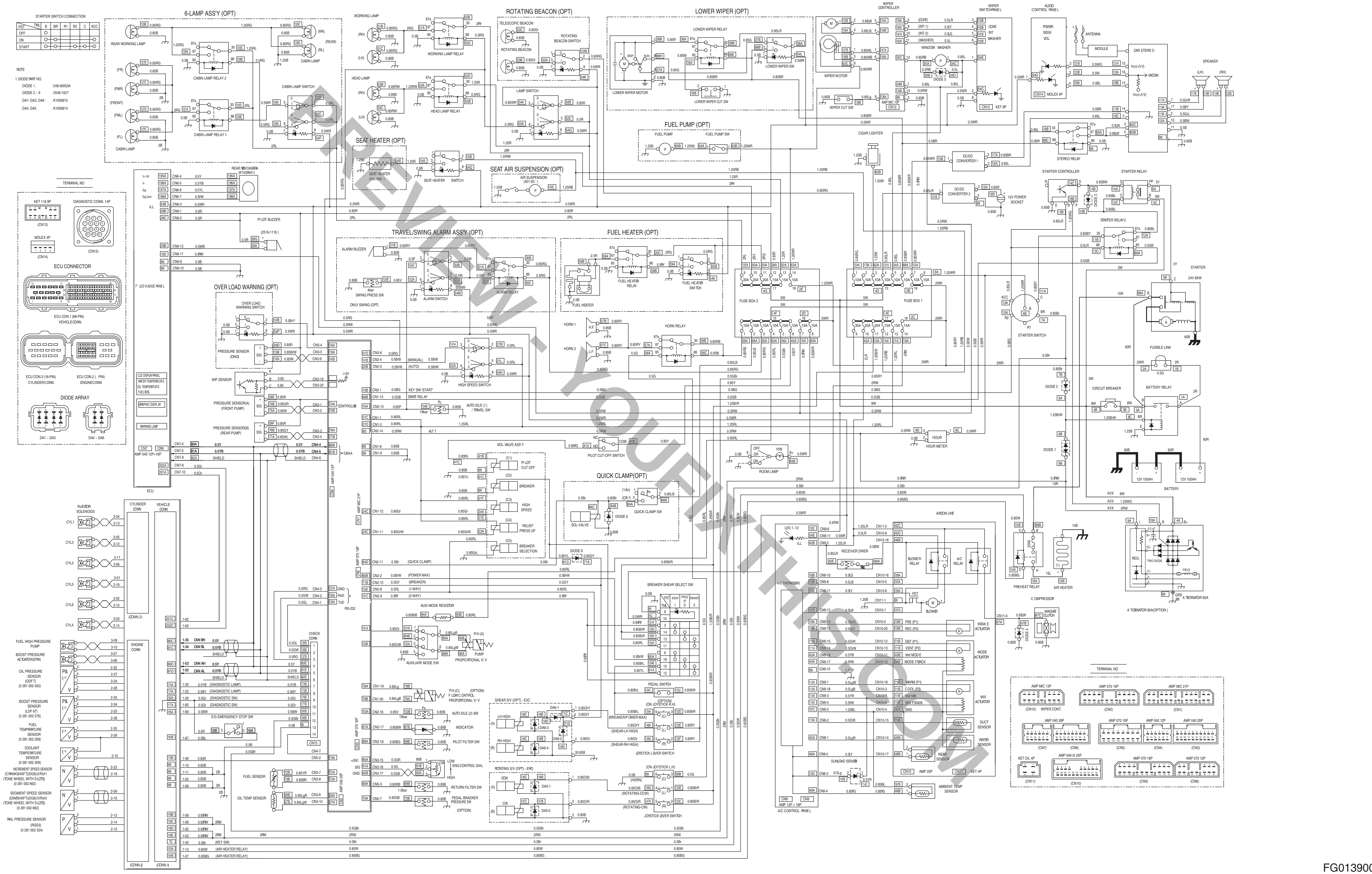
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FG013899

Figure 1

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Figure 1

Reference Number	Description
1	Counterweight
2	Hood
3	Muffler
4	Hydraulic Oil Tank
5	Fuel Tank
6	Engine
7	Fuel Tank Fill Cap
8	Radiator and Oil Cooler
9	Control Valves
10	Swing Motor
11	Air Cleaner
12	Swing Bearing
13	Cabin
14	Seat
15	Boom Cylinder
16	Work Lever (Joystick) Controls
17	Arm Cylinder
18	Boom
19	Travel Lever

Reference Number	Description
20	Arm
21	Bucket Cylinder
22	Guide Link
23	Bucket
24	Push Link
25	Tooth Point
26	Side Cutter
27	Idler
28	Track Adjuster
29	Track Guide
30	Battery
31	Lower Roller
32	Center Joint
33	Upper Roller
34	Travel Motor
35	Track Link and Shoe
36	Suction Filter
37	Return Filter
38	Pumps

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REMOVAL

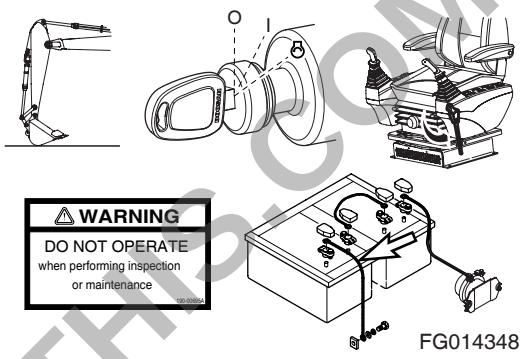
CAUTION

Avoid disassembling cabin if there are strong wind gusts, which could catch large surface area of cabin shell and push it sideways during lift.

1. Park on firm and level ground.
2. Lower front attachment (bucket) to ground.
3. Shut down engine.
4. Set safety lever on "RELEASED" position.
5. Turn starter switch to "I" (ON) position.

WARNING

If engine must be run while performing maintenance, use extreme care. Always have one person in the cabin at all times. Never leave the cabin with the engine running.



FG014348

Figure 1

6. Fully stroke work levers (joysticks) in all directions to relieve pressure from accumulators.
7. Set safety lever on "LOCK" position.
8. Turn key to "O" (OFF) position and remove from starter switch.
9. Hang maintenance warning tag on controls.
10. Disconnect the battery cable from the negative (-) battery terminal.
11. Prepare cabin shell for removal by disconnecting wiring connectors for:
    A. Cabin interior lighting.
    B. External light wiring.
    C. Radio antenna and connections.
    D. Wiper/washer connections.

NOTE: *Control console wiring harnesses and hydraulic piping lines that pass through the floor of the cabin do not need to be disassembled.*

NOTE: *If unit is equipped with a cabin protective structure (for forestry, or hazardous working conditions), it must be removed.*

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TORQUE VALUES FOR STANDARD METRIC FASTENERS

NOTE: *The units for the torque values are kg•m (ft lb).*

Dia. x Pitch (mm)	Grade										
	3.6 (4A)	4.6 (4D)	4.8 (4S)	5.6 (5D)	5.8 (5S)	6.6 (6D)	6.8 (6S)	6.9 (6G)	8.8 (8G)	10.9 (10K)	12.9 (12K)
M5 x Std.	0.15 (1.08)	0.16 (1.15)	0.25 (1.80)	0.22 (1.59)	0.31 (2.24)	0.28 (2.02)	0.43 (3.11)	0.48 (3.47)	0.50 (3.61)	0.75 (5.42)	0.90 (6.50)
M6 x Std.	0.28 (2.02)	0.30 (2.16)	0.45 (3.25)	0.40 (2.89)	0.55 (3.97)	0.47 (3.39)	0.77 (5.56)	0.85 (6.14)	0.90 (6.50)	1.25 (9.04)	1.50 (10.84)
M7 x Std.	0.43 (3.11)	0.46 (3.32)	0.70 (5.06)	0.63 (4.55)	0.83 (6.00)	0.78 (5.64)	1.20 (8.67)	1.30 (9.40)	1.40 (10.12)	1.95 (14.10)	2.35 (16.99)
M8 x Std.	0.70 (5.06)	0.75 (5.42)	1.10 (7.95)	1.00 (7.23)	1.40 (10.12)	1.25 (9.04)	1.90 (13.74)	2.10 (15.18)	2.20 (15.91)	3.10 (22.42)	3.80 (27.48)
M8 x 1	0.73 (5.28)	0.80 (5.78)	1.20 (8.67)	1.00 (7.23)	1.50 (10.84)	1.35 (9.76)	2.10 (15.18)	2.30 (16.63)	2.40 (17.35)	3.35 (24.23)	4.10 (29.65)
M10 x Std.	1.35 (9.76)	1.40 (10.12)	2.20 (15.91)	1.90 (13.74)	2.70 (19.52)	2.35 (19.99)	3.70 (26.76)	4.20 (30.37)	4.40 (31.18)	6.20 (44.84)	7.20 (52.07)
M10 x 1.25	1.50 (10.84)	1.60 (11.57)	2.50 (18.08)	2.10 (15.18)	3.10 (22.42)	2.80 (20.25)	4.30 (31.10)	4.90 (35.44)	5.00 (36.16)	7.00 (50.63)	8.40 (60.75)
M12 x Std.	2.40 (17.35)	2.50 (18.08)	3.70 (26.76)	3.30 (23.86)	4.70 (33.99)	4.20 (30.37)	6.30 (45.56)	7.20 (52.07)	7.50 (54.24)	10.50 (75.94)	12.50 (90.41)
M12 x 1.25	2.55 (18.44)	2.70 (19.52)	4.00 (28.93)	3.50 (25.31)	5.00 (36.16)	4.50 (32.54)	6.80 (49.18)	7.70 (55.69)	8.00 (57.86)	11.20 (81.00)	13.40 (96.92)
M14 x Std.	3.70 (26.76)	3.90 (28.20)	6.00 (13.23)	5.20 (37.61)	7.50 (54.24)	7.00 (50.63)	10.00 (72.33)	11.50 (83.17)	12.00 (86.79)	17.00 (122.96)	20.00 (144.66)
M14 x 1.5	4.10 (29.65)	4.30 (31.10)	6.60 (47.73)	5.70 (41.22)	8.30 (60.03)	7.50 (54.24)	11.10 (80.28)	12.50 (90.41)	13.00 (94.02)	18.50 (11.26)	22.00 (158.12)
M16 x Std.	5.60 (40.50)	6.00 (43.39)	9.00 (65.09)	8.00 (57.86)	11.50 (83.17)	10.50 (75.94)	15.50 (112.11)	17.90 (129.47)	18.50 (133.81)	26.00 (188.05)	31.00 (224.22)
M16 x 1.5	6.20 (44.84)	6.50 (47.01)	9.70 (70.16)	8.60 (62.20)	12.50 (90.41)	11.30 (81.73)	17.00 (122.96)	19.50 (141.04)	20.00 (144.66)	28.00 (202.52)	35.50 (256.77)
M18 x Std.	7.80 (56.41)	8.30 (60.03)	12.50 (90.41)	11.00 (79.56)	16.00 (115.72)	14.50 (104.87)	21.00 (151.89)	27.50 (198.90)	28.50 (206.14)	41.00 (296.55)	43.00 (311.01)
M18 x 1.5	9.10 (65.82)	9.50 (68.71)	14.40 (104.15)	12.50 (90.41)	18.50 (133.81)	16.70 (120.79)	24.50 (177.20)	27.50 (198.90)	28.50 (206.14)	41.00 (296.55)	49.00 (354.41)
M20 x Std.	11.50 (83.17)	12.00 (86.79)	18.00 (130.19)	16.00 (115.72)	22.00 (159.12)	19.00 (137.42)	31.50 (227.83)	35.00 (253.15)	36.00 (260.38)	51.00 (368.88)	60.00 (433.98)
M20 x 1.5	12.80 (92.58)	13.50 (97.64)	20.50 (148.27)	18.00 (130.19)	25.00 (180.82)	22.50 (162.74)	35.00 (253.15)	39.50 (285.70)	41.00 (296.55)	58.00 (419.51)	68.00 (491.84)
M22 x Std.	15.50 (112.11)	16.00 (115.72)	24.50 (177.20)	21.00 (151.89)	30.00 (216.99)	26.00 (188.05)	42.00 (303.78)	46.00 (332.71)	49.00 (354.41)	67.00 (484.61)	75.00 (542.47)
M22 x 1.5	17.00 (122.96)	18.50 (133.81)	28.00 (202.52)	24.00 (173.59)	34.00 (245.92)	29.00 (209.75)	47.00 (339.95)	52.00 (44.76)	56.00 (405.04)	75.00 (542.47)	85.00 (614.80)
M24 x Std.	20.50 (148.27)	21.50 (155.50)	33.00 (238.68)	27.00 (195.29)	40.00 (289.32)	34.00 (245.92)	55.00 (397.81)	58.00 (419.51)	63.00 (455.67)	82.00 (593.10)	92.00 (655.43)
M24 x 2.0	23.00 (166.35)	35.00 (253.15)	37.00 (267.62)	31.00 (224.22)	45.00 (325.48)	38.00 (202.52)	61.00 (441.21)	67.00 (484.61)	74.00 (535.24)	93.00 (672.66)	103.00 (744.99)

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TROUBLESHOOTING – SWING GEARBOX

Problem	Possible Cause	Remedy
Swing motor fails to operate and:		
Three pressure tests at motor, brake or makeup valve show low reading(s).	Swing relief valve defective Brake release valve defective Motor makeup valve defective.	Adjust pressure to recommended range in affected valve. OR Disassemble and clean valve assembly. Replace all valve components that show damage.
All three pressure checks are OK but left travel also fails to run.	Exchange front and rear pump inlet and outlet hoses to test pump function.	If swing and left travel are restored but right travel stops working, replace or repair P1 pump.
All three pressure tests are OK, but machine fails to swing at all.	Brake assembly or motor friction plate failing to release.	Check for binding. Disassemble and repair.
	Pilot (control) pressure low or swing control valve stuck.	Disassemble / Repair pilot pressure swing spool (305) and / or swing control valve.
	Swing motor defective.	Test motor drain rate. Replace / Repair motor.
	Gear train defective.	Refer to "Swing Gear Troubleshooting" procedure.
Swing functions but only at reduced rpm.	Causes listed above could also produce dragging swing, OR hot or wrong oil OR worn-out parts.	Check above list; then replace oil, test motor drain rate and check for "03" reading (e-EPOS self-test).
Left travel speed is also reduced.	Low output at P1 pump or external pilot piping leaks/is clogged.	Clean and repair piping or repair or replace pump P1.
Swing control movement is reversed.	Inlet / outlet piping reversed.	Reset controls or reverse piping.
Machine swings but continues coasting on past stopping point.	Swing control valve spool not centered.	Replace return spring; clean/ repair valve piston and spool.
	Pilot pressure may be outside range.	Disassemble, clean or replace pilot relief valve or pilot valve.
	Swing relief valve may be faulty.	Repair/Replace swing relief valve.
Swing movement is in one direction only.	Check to see that pilot pressure is the same right and left.	If pilot pressure is unequal, clean or repair piping or repair/replace valve.
	Swing control valve spool may be stuck.	Repair/Replace the swing control valve.
	Swing relief valve may be faulty.	Repair/Replace the swing relief valve.
No rotation and:		

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SAFETY PRECAUTIONS

CAUTION

Follow all safety recommendations and safe shop practices outlined in the front of this manual or those contained within this section.

Always use tools and equipment that are in good working order.

Use lifting and hoisting equipment capable of safely handling load.

Remember, that ultimately safety is your own personal responsibility.

APPLICABLE MODELS

The contents of this section apply to the following models and serial number ranges.

MODEL	SERIAL NUMBER RANGE
DX225LC	5001 and Up
DX225NLC	5001 and Up
DX230LC	5001 and Up
DX300LC	5001 and Up
DX340LC	5001 and Up

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TOWING

Precautions When Towing

If any mistake is made in the method of selecting or inspecting the towing wire or in the method of towing, it may lead to serious personal injury. Always do the following:

- Always use the method of towing given in this Operation and Maintenance Manual. Do not use any other method.
- Use leather gloves when handling the wire rope.
- When carrying out the preparation work for towing with two or more workers, determine the signals to use and follow these signals correctly.
- Always fit the towing rope to the left and right hooks and secure in position.
- If the engine on the problem machine will not start or there is a failure in the brake system. always contact your DOOSAN distributor.
- Never go between the towing machine and the towed machine during the towing operation.
- It is dangerous to carry out towing on slopes, so select a place where the slope is gradual. If there is no place where the slope is gradual, carry out operations to reduce the angle of the slope before starting the towing operation.
- When towing a problem machine, always use a wire rope with a sufficient towing capacity.
- Do not use a frayed, kinked rope or a rope with any loss of diameter.
- Do not use the lightweight towing hook for towing another machine.

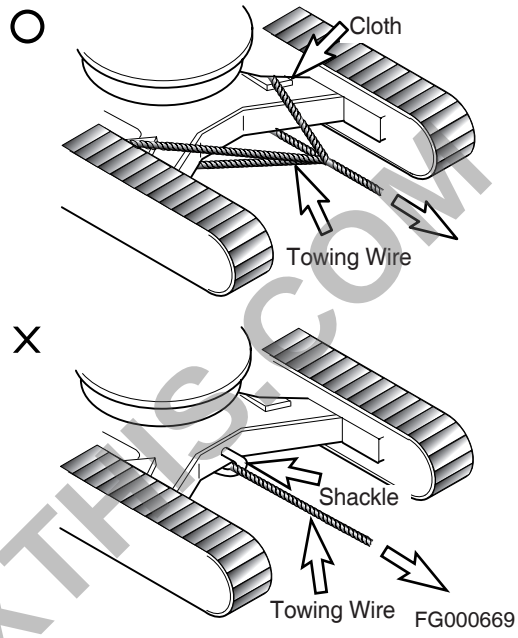


Figure 46

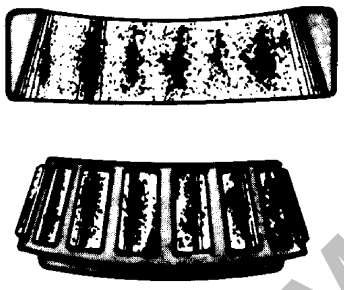
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Fatigue Spalling

Flaking of surface metal resulting from fatigue.

Replace bearing - clean all related parts.



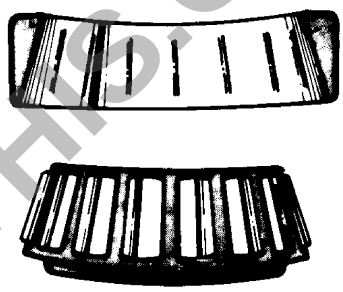
HASA530S

Figure 10

Brinelling

Surface indentations in raceway caused by rollers either under impact loading or vibration while the bearing is not rotating.

Replace bearing if rough or noisy.



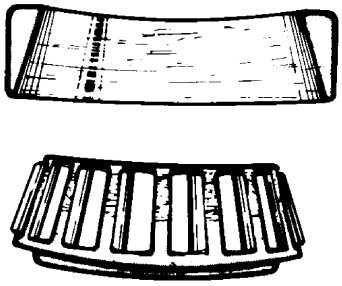
HASA540S

Figure 11

Cage Wear

Wear around outside diameter of cage and roller pockets caused by abrasive material and inefficient lubrication.

Replace bearings - check seals.



HASA550S

Figure 12

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Fuel Tank

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DISASSEMBLY

IMPORTANT

Select a clean place.

Spread a rubber mat or cloth on top of the overhaul workbench to prevent parts from being damaged.

1. Remove bolts and motor from swing reduction case.



Figure 4

CAUTION

The motor should be separated without damage or any foreign substance.

CAUTION

Care should be taken not to damage mounting surface of motor. Carefully remove all gasket material from mounting surfaces.

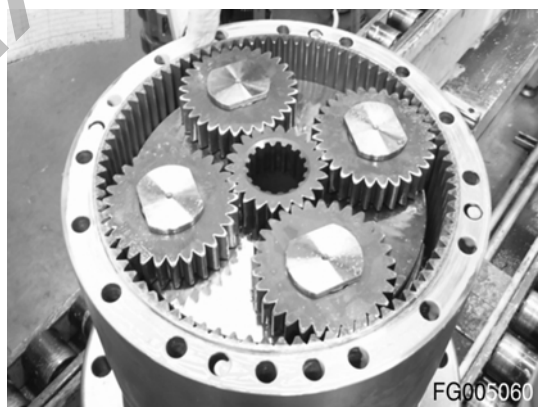


Figure 5

2. Remove No. 1 sun gear from No. 1 carrier.

CAUTION

Care should be taken not to damage teeth of No. 1 sun gear.

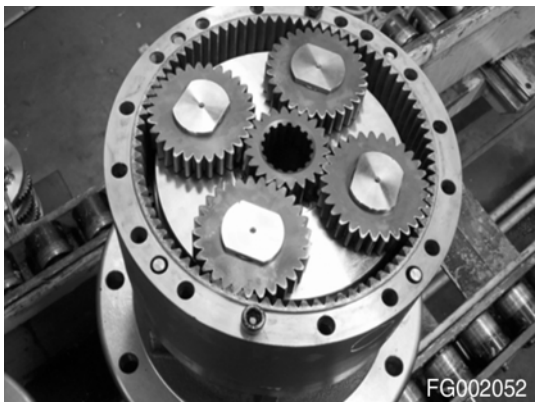
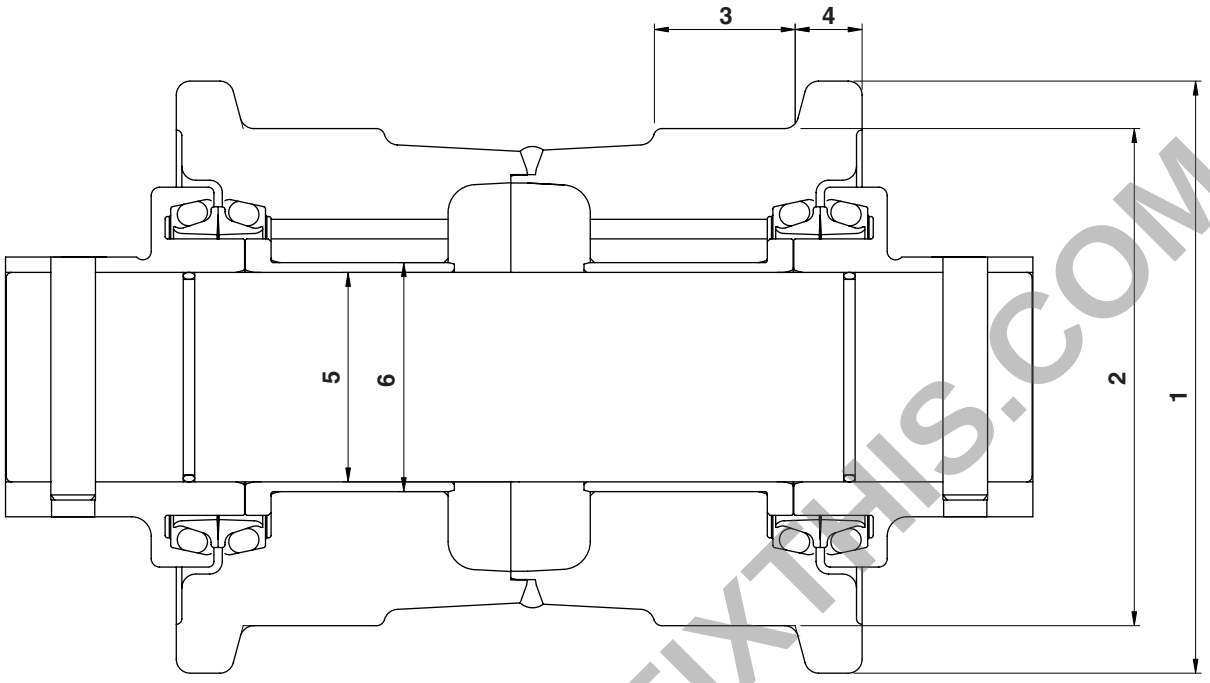


Figure 6

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Lower Roller



FG000508

Figure 5

No.	Check Item	Standard Dimension	Recommended Limit for Maintenance	Limit for Use (Repair - P or Replace - R)
1	Outside Diameter of Flange	185 mm (7.283")	180 mm (7.087")	180 mm [P] (6.89")
2	Outside Diameter of Tread	154 mm (6.063")	150 mm (5.906")	145 mm [P] (5.709")
3	Width of Tread	49 mm (1.929")	55 mm (2.165")	
4	Width of Flange	23 mm (0.906")		

No.	Check Item	Standard Dimension	Tolerance		Standard Interference	Repair Limit
			Shaft	Hole		
5	Clearance between Shaft and Bushing	65 mm (2.559")	-0.06 -0.1	+0.35 +0.28	+0.45 +0.34	63.3 mm [R] (2.492")
6	Interference between Roller and Bushing	72 mm (2.835")	+0.14 +0.09	+0.03 -0.02	+0.16 +0.06	

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Bucket Operating Circuit

The bucket operating circuit includes the right main pump, the right half of the control valve and the bucket cylinder. 360 kg/cm^2 (5,112 psi) overload relief valves at BKT and BKTD 1 ports of the control valve protect the circuit and its components from being damaged.

Bucket Crowd Circuit

When the bucket control lever is placed in the crowd position, the bucket control valve spool on the right side of the control valve opens and oil from right main pump flows to the bucket cylinder.

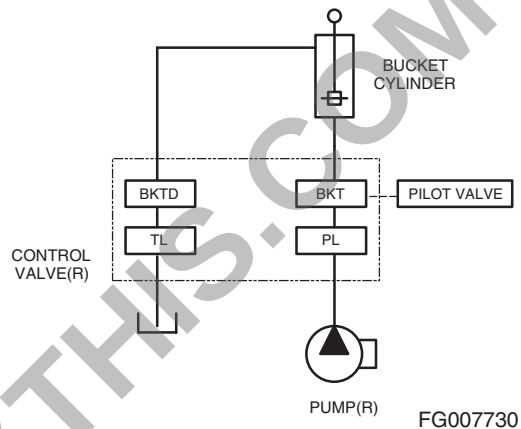


Figure 6

Bucket Dump Circuit

When the bucket control lever is put in the dump mode, the bucket control valve spool in the right half of the control valve opens to supply oil from the right main pump to the cylinder.

Swing Operating Circuit

The swing operating circuit consists of the left main pump in the pump assembly, the left half of the control valve and the swing motor. To keep the upper works from coasting when the swing control is in neutral, an electrical sensor in the control circuit activates a valve to automatically engage a mechanical brake.

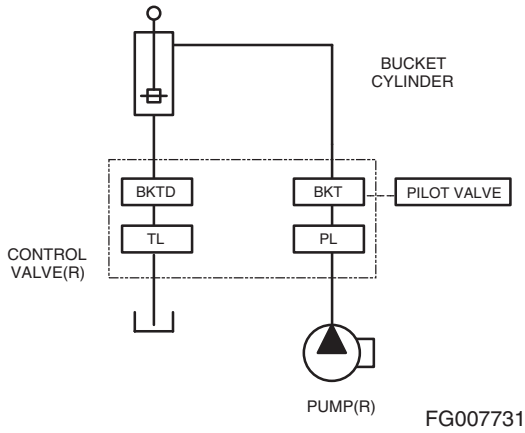


Figure 7

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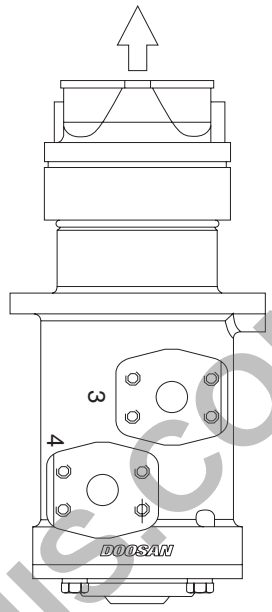
CAUTION

Care should be taken not to make a flaw on the surface of the Shaft when disassembling the Hub of the Shaft assembly.

6. Disassemble the hub from the shaft assembly.

   It can be disassembled easily by fixing the Shaft assembly, tightening at least 2-10mm eye bolts on the Hub, and lifting it with a hoist slowly.

7. If the shaft assembly doesn't separate easily when the thrust plate and retaining ring are removed, use a wooden block and hammer to drive it out of the housing



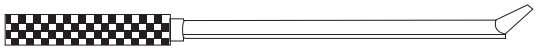
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Figure 4

8. Separate the Hub into 8ea sliper seals, 1ea O-ring(1BP80), and 1ea Dust seal(LBH80).

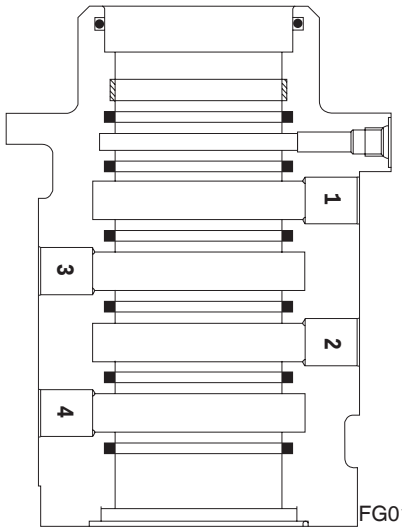
CAUTION

Care should be taken not to damage the inside of the Hub becasuse it is likely to be damaged when disassembling the slipper seal. It may be disassembled more easily with a driver whose tip is bent as shown in the figure below.



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Figure 5



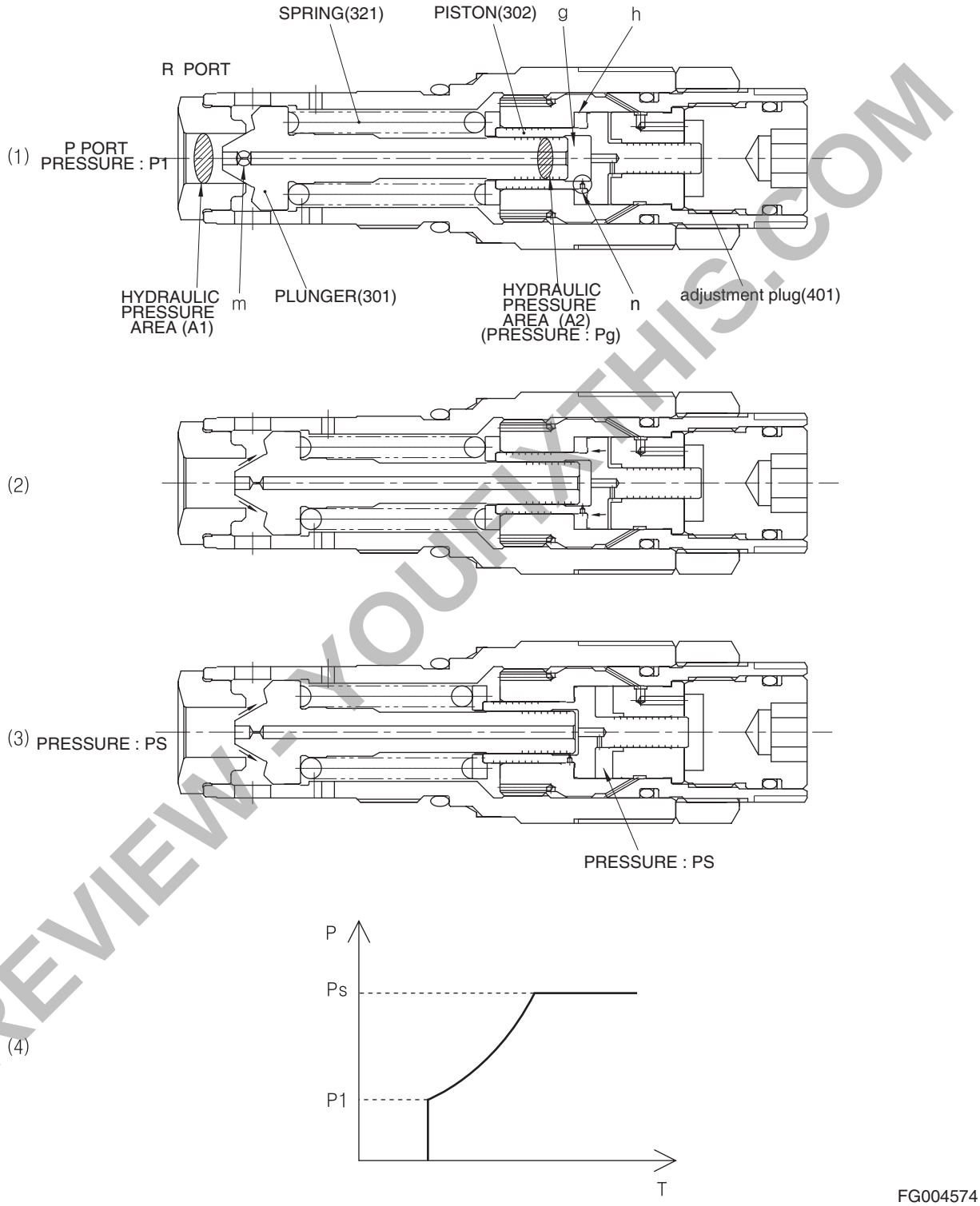
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Figure 6

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$$P_s = \frac{Fsp'}{A1 - A2}$$



FG004574

Figure 4

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Reference	Parts
249	Ball Bearing
250	Ball Bearing (HR6206HL1B)
260	Spring (2-speed)
261	Piston (2-speed)
262	Shoe (2-speed)
267	Pivot
275	O-ring
M	Hydraulic Motor Assembly
M-1	Cylinder Block & Piston Kit
M-2	Piston Assembly
M-3	Piston (2-speed) Kit

Reference	Parts
401	Plunger
402	Piston Seal
403	Body
404	Back up Ring
405	O-ring
406	O-ring
407	Spring Retainer
408	Spring
409	Piston
412	Adjust Plug
413	Lock Nut

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CAUTION

Removing a plug, when pressure is not fully released, or bucket is not lowered to ground, is very dangerous. A part in the valve may spring out and drop the bucket at the same time. Always lower bucket to ground and fully release pressure before disassembling.

1. Remove socket head bolt (75, four places per each section, width across flats: 8 mm) and flange (37, seven places).
2. Remove spring (35), poppet (34) (poppet (51)) and O-ring (36) from valve housing.

CAUTION

Be careful, there is not a poppet and spring in travel straight valve section (Section H-H).

3. Remove socket head bolt (75, width across flats: 8 mm) and flange (52, two places).
4. Remove spacer (53) from valve housing. Remove O-ring (54) and backup ring (55) from spacer (53).
5. Remove spring (35) and poppet (34) from valve housing.
6. Remove plug (72, width across flats: 8 mm) (Section C-C).
7. Remove spring (33) and poppet (32) from valve housing.
8. Remove plug (72, width across flats: 8 mm) (Section L-L).
9. Remove spacer (57), spring (33) and poppet (32) from valve housing.
10. Remove plug (92, width across flats: 36 mm) (Section G-G).
11. Remove socket head bolt (73, four places, width across flats: 8 mm) and flange (43).
12. Remove spring (45), poppet (44) and O-ring (36) from valve housing.
13. Remove plug (46, width across flats: 27 mm) and O-ring (47).
14. Remove spring (48) and poppet (49) from valve housing.
15. Remove socket head bolt (101, four places, width across flats: 8 mm) from body (96, one places).
16. Remove body (96) from valve housing. Remove sleeve (99), piston (97), spring (98), poppet assembly (100), backup ring (103), and O-ring (104).
17. Remove O-ring (36).

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REASSEMBLY

Reassembly shall be made in the reverse order of the Disassemble with cautions for:

1. Repair damaged parts during the disassembly and have spare parts prepared by hand.
2. Wash each part sufficiently with lubricating oil and dry them with compressed air before their reassembly.
3. Always apply clean lubricating oil to sliding parts and bearing before their reassembly.
4. Make it a rule to replace O-rings and oil seals.
5. Tighten fixing bolts and plugs with proper torque wrenches and with torques specified in the Maintenance Standards.

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INSTALLATION

1. Position pedal valve (1, Figure 36) on cabin floor plate and install four bolts and washers (2).

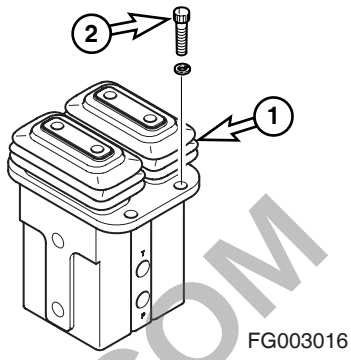


Figure 36

2. Install pedal brackets (3) and levers (4, Figure 37) on pedal valve and install four bolts and washers (2).
3. Install rubber boots (1, Figure 37).

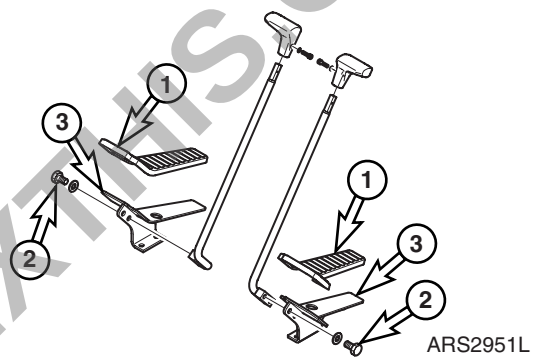


Figure 37

4. Connect hoses as tagged during removal to pedal valve (1, Figure 38).
5. Install cabin under cover by tightening bolts.

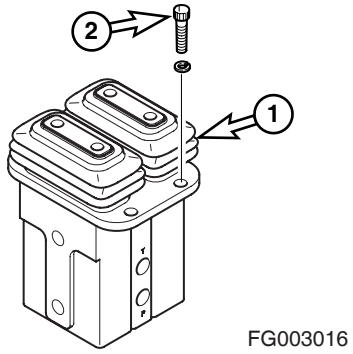


Figure 38

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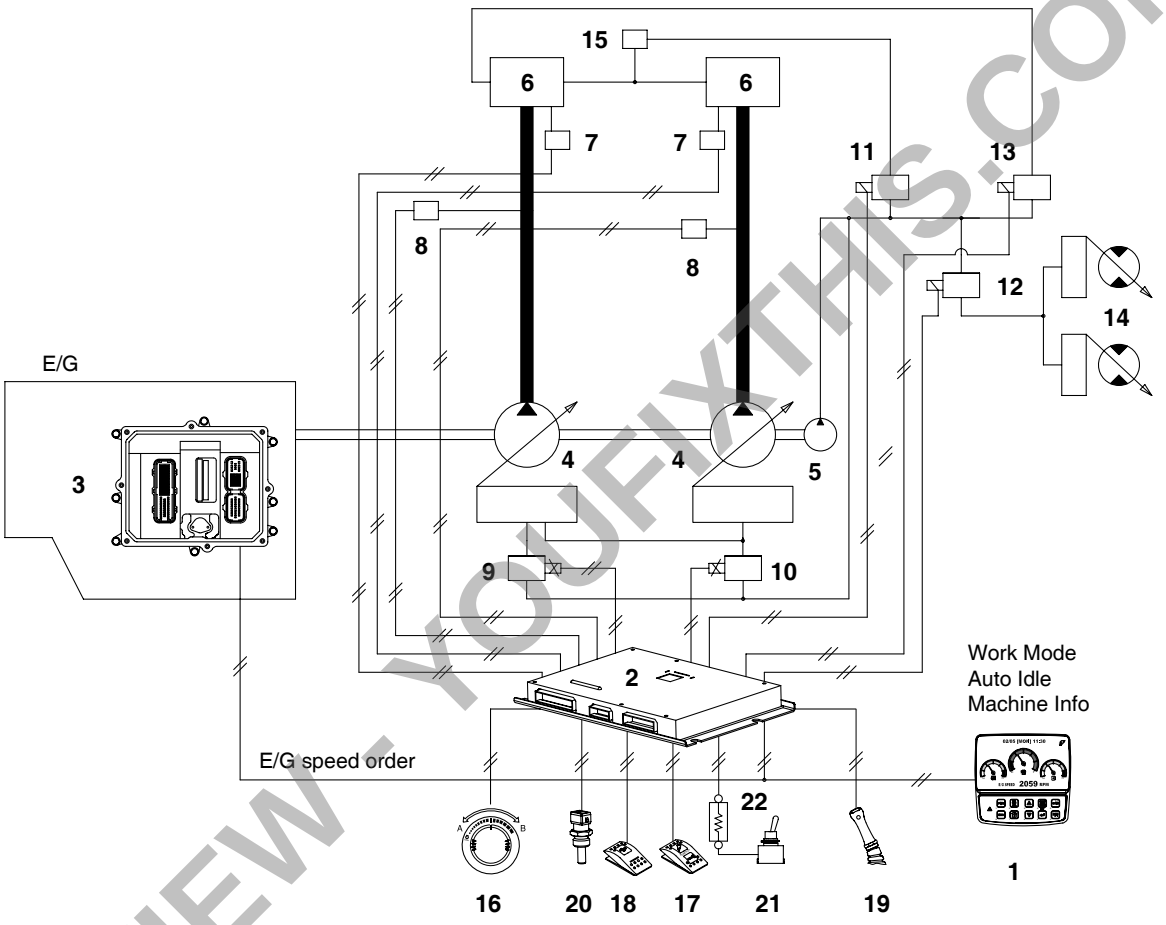
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ELECTRONIC HYDRAULIC CONTROL SYSTEM (e-EPOS)

Control System Schematic



FG013630

Figure 51

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4	**High-pressure: Over 6 kg/cm^2 (85 psi)** **Low-pressure: Approximately 760 mmHg (Negative Pressure)**		
Possible Cause: Refrigerant does not circulate			
Step	**Inspection Item**		**Remedy**
1	1. Connect manifold gauge and start engine. 2. Turn on air conditioner. 3. Set blower switch to HIGH position. 4. Turn air conditioner OFF and wait 10 minutes. 5. Recheck high / low-pressure readings. High-pressure: 13.0 - 19.0 kg/cm^2 (185 - 270 psi) Low-pressure: 1.5 - 3.3 kg/cm^2 (21.3 - 46.9 psi)	Yes	Moisture in system, replace receiver dryer.
		No	Contaminated system, replace expansion valve. (Replace evaporator core assembly.)

5	**High-pressure: Over 6 - 18 kg/cm^2 (85 - 256 psi)** **Low-pressure: 500 mmHg (Negative Pressure) - Dial indicator needle unstable.**
Possible Cause: Moisture in system has iced up the expansion valve.	
NOTE:	*When the absorbed moisture freezes the pressure readings may look normal. Careful readings should be made to determine whether pressure is in normal range.*
1. Recover any remaining refrigerant. 2. Vacuum out system. 3. Recharge system.	
NOTE:	*If the system has been exposed to the air for a long period of time, replace the receiver dryer.*

6	**High-pressure: Over 22.0 - 23 kg/cm^2 (313 - 327 psi)** **Low-pressure: 2.5 kg/cm^2 (36 psi)**		
Possible Cause: Refrigerant pressure problem due to defective expansion valve or temperature sensor.			
Step	**Inspection Item**		**Remedy**
1	Inspect whether the temperature sensor is installed properly.	Yes	Replace expansion valve.
		No	Exchange duct sensor.

7	**High-pressure: Over 7.0 - 11.0 kg/cm^2 (100 - 156 psi)** **Low-pressure: 4.0 - 6.0 kg/cm^2 (57 - 85 psi)**
Possible Cause: Low refrigerant pressure due to poor compressor compression.	
Inspect and replace compressor if necessary.	

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